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EXAMINER	
NOGUEROLA, ALEXANDER STEPHAN	
ART UNIT	PAPER NUMBER
1753	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/727,301	LEAN ET AL.	
	Examiner	Art Unit	
	ALEX NOGUEROLA	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,8-12 and 15-24* is/are rejected.

7)☒ Claim(s) *5-7,13 and 14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/03/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *See Continuation Sheet*.

Continuation of Attachment(s) 6). Other: IDS of 06/10/2004, and IDS of 05/04/2005.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 20 of U.S. Patent No. 7,156,970 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of claim 1 of the instant application are provided, implied, or obvious over claim 20 of U.S. Patent No. 7,156,970 B2:

A traveling wave grid assembly (claim 20 (through claim 13) – "...(ii) a traveling wave grid ...") comprising

a planar substrate (claim 20 (through claim 13) – "... said gel layer disposed between two parallel substrates ...")

a plurality of electrically conductive and closely spaced electrodes disposed in the substrate, the electrodes extending parallel to one another and each defining a first end and a second end opposite from the first end (claim 20 (through claim 13) – "... said first grid segment includes a plurality of closely spaced parallel electrodes ...")

a layer of a gel material adapted for retention and migration of biomolecules dispersed therein (claim 20 (through claim 13) – "A process for separating various biomolecules ... (i) a layer of a gel suitable for electrophoresis")

a voltage controller adapted to provide an electrical signal having a plurality of phases (claim 20 (through claim 13) – "(iii) a voltage controller in selective electrical communication with said first grid segment and said second grid segment, said voltage controller adapted to provide at least one multi-phase electrical signal, ...") and

a plurality of electrically conductive buses providing electrical communication between the controller and the plurality of electrodes, wherein the number of buses corresponds to the number of phases of the electrical signal provided by the controller, and each one of the buses is in electrical communication with both a first end and a second end of a corresponding electrode (implied by claim 20 – "... said step of applying said first signal to said first grid segment includes 9i) placing in electrical communication a first phase of said first signal with a first electrode of said plurality of

electrodes, and placing in electrical communication said first phase of said first signal with a second electrode of said plurality of electrodes.").

It would have been obvious to one with ordinary skill in the art at the time of the invention to have the substrate be dielectric because this will avoid stray electrical fields, which may interfere with the traveling wave fields, and will avoid shorting an electrode grid, which may be on the substrate.

3. Claim 2 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 20 of U.S. Patent No. 7,156,970 B2. Claim 1, from which claim 2 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 20 of U.S. Patent No. 7,156,970 B2 requires the first multi-phase electrical signal to be a four (4) phase signal.

4. Claims 3 and 4 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 20 of U.S. Patent No. 7,156,970 B2. Claim 1, from which claims 3 and 4 each depend, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because the metal with which the electrode is made such as copper or platinum will just

depend on the desired a balance of cost versus corrosion resistance and desired conductivity. For example, platinum is more expensive than copper and much less conductive; however, it is more corrosion resistant than copper when used for electrophoresis/dielectrophoresis.

5. Claim 8 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the combination of claims 16 and 20 of U.S. Patent No. 7,156,970 B2. Claim 1, from which claim 8 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 16 requires the system to further comprise a voltage source in electrical communication with the layer of gel and the step of applying a voltage potential across a thickness dimension of the layer of the gel. This implies an electrode over the gel opposing the traveling wave grid. Since the gel is a layer that is between two parallel substrates this implies that the additional electrode will be planar and also parallel to the electrodes of the traveling wave grid.

6. Claim 18 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 20 of U.S. Patent No. 7,156,970 B2.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of claim 1 of the instant application are provided, implied, or obvious over claim 20 of U.S. Patent No. 7,156,970 B2:

A system for separating, transporting or focusing biomoleues, the system comprising

a substrate ("... said gel layer disposed between two parallel substrates");

a plurality of closely spaced, parallel, electrically conductive electrodes disposed in the substrate ("...said first grid segment includes a plurality of closely spaced parallel electrodes,...");

a layer of a material adapted for the retention and migration of biomolecules disposed therein ("(i) a layer of gel suitable for electrophoresis, said gel layer disposed between two parallel substrates,") and

a voltage controller in electrical communication with the plurality of electrodes, the

voltage controller providing a four phase electrical control signal to the plurality of electrodes ("... (iii) a voltage controller in selective electrical communication with said first grid segment and said second grid segment, said voltage controller adapted to provide at least one multi-phase electrical signal ... wherein said first multi-phase electrical signal is a four (4) phase signal ...");

wherein depending upon the signal provided by the voltage controller, a particular

mode of transport is imparted to biomolecules disposed in the layer ("applying a first multi-phase electrical signal from said voltage controller ... to thereby cause at least a portion of biomolecules in said sample to migrate in the gel").

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1, 2, 4, 8, and 18-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Lean et al. (US 7,156,970 B2) ("Lean").

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Addressing claim 1, Lean discloses

a traveling wave grid assembly (abstract) comprising

a planar dielectric substrate (140 in Figure 1B and col. 07:33-34)

a plurality of electrically conductive and closely spaced electrodes disposed in the substrate, the electrodes extending parallel to one another and each defining a first end and a second end opposite from the first end (150 in Figure 1B and Figure 6)

a layer of a gel material adapted for retention and migration of biomolecules dispersed therein (120)

a voltage controller adapted to provide an electrical signal having a plurality of phases (col. 11:33-38 and col. 10:06-16) and

a plurality of electrically conductive buses providing electrical communication between the controller and the plurality of electrodes, wherein the number of buses corresponds to the number of phases of the electrical signal provided by the controller, and each one of the buses is in electrical communication with both a first end and a second end of a corresponding electrode (col. 10:41-49).

Addressing claim 2, for the additional limitation of his claim see col. 07:59 – col. 08:06.

Addressing claim 4, for the additional limitation of his claim see col. 07:55-57.

Addressing claim 8, for the additional limitation of his claim see col. 07:33-36.

Addressing claim 18, Lean discloses a system for separating, transporting or focusing biomolecules, the system comprising

a substrate;

a plurality of closely spaced, parallel, electrically conductive electrodes disposed on the substrate;

a layer of a material adapted for the retention and migration of biomolecules disposed therein; and

a voltage controller in electrical communication with the plurality of electrodes, the voltage controller providing a four phase electrical control signal to the plurality of electrodes;

wherein depending upon the signal provided by the voltage controller, a particular mode of transport is imparted to biomolecules disposed in the layer. See Figure 6 and col. 10:33 – col. 11:31 and col. 06:67-68.

Addressing claims 19-21, for the additional limitations of these claims see col. 08:19 – col. 10:16.

Addressing claim 22, the additional limitations of this claim are implied by Figure 6, which shows the electrodes having a first end and a second end and voltage controllers in electrical communication with both ends of the electrodes they are associated with.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 3, 9, 10-12, 15-17, 23, and 24 are rejected under 35 U.S.C. 103(a) as being obvious over Lean et al. (US 7,156,970 B2) ("Lean").

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR

1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Addressing claim 3, Lean discloses

a traveling wave grid assembly (abstract) comprising

a planar dielectric substrate (140 in Figure 1B and col. 07:33-34)

a plurality of electrically conductive and closely spaced electrodes disposed in the substrate, the electrodes extending parallel to one another and each defining a first end and a second end opposite from the first end (150 in Figure 1B and Figure 6)

a layer of a gel material adapted for retention and migration of biomolecules dispersed therein (120)

a voltage controller adapted to provide an electrical signal having a plurality of phases (col. 11:33-38 and col. 10:06-16) and

a plurality of electrically conductive buses providing electrical communication between the controller and the plurality of electrodes, wherein the number of buses corresponds to the number of phases of the electrical signal provided by the controller, and each one of the buses is in electrical communication with both a first end and a second end of a corresponding electrode (col. 10:41-49).

Although Lean only mentions electrodes comprising platinum (col. 07:55-57), it would have been obvious to one with ordinary skill in the art at the time of the invention to use copper if cost is a concern and greater conductivity is desired. Platinum is more expensive than copper and much less conductive; however, it is more corrosion resistant than copper when used for electrophoresis/dielectrophoresis.

Addressing claims 9 and 10, Lean discloses

a traveling wave grid assembly (abstract) comprising

a planar dielectric substrate (140 in Figure 1B and col. 07:33-34)

a plurality of electrically conductive and closely spaced electrodes disposed in the substrate, the electrodes extending parallel to one another and each defining a first end and a second end opposite from the first end (150 in Figure 1B and Figure 6)

a layer of a gel material adapted for retention and migration of biomolecules dispersed therein (120)

a voltage controller adapted to provide an electrical signal having a plurality of phases (col. 11:33-38 and col. 10:06-16) and

a plurality of electrically conductive buses providing electrical communication between the controller and the plurality of electrodes, wherein the number of buses corresponds to the number of phases of the electrical signal provided by the controller, and each one of the buses is in electrical communication with both a first end and a second end of a corresponding electrode (col. 10:41-49).

Lean does not mention possible metals from which the buses can be made, such as copper or aluminum. However, barring evidence to the contrary, such as unexpected results, the choice of metal from which to make the buses, especially from metals commonly used as electrical conductors was within the skill of one with ordinary skill in the art at the time of the invention. One with ordinary skill in the art would balance at least cost of the metal with conductivity and corrosion resistance.

Addressing claim 11, Lean discloses a traveling wave grid module (50) adapted for use in vertically integrated tiled system (Figure 1A), the module comprising

a planar dielectric substrate (30 – col. 06:67 – col. 07:01)

a plurality of electrically conductive and closely spaced electrodes disposed on the substrate, the electrodes extending parallel to one another and each defining a first end and a second end opposite from the first end (col. 07:48-55).

Lean does not mention (a) that the traveling wave grid is also adapted for use with another traveling wave grid, (b) a set of electrically conductive contact pads accessible along the substrate, and (c) a plurality of electrically conductive buses providing electrical communication between the plurality of contact pads and the plurality of electrodes, each one of the buses being in electrical communication with a respective electrode.

Lean does also discloses, though, a traveling wave grid embodiment having

a planar dielectric substrate;

a plurality of electrically conductive and closely spaced electrodes disposed on the substrate, the electrodes extending parallel to one another and each defining a first end and a second end opposite from the first end;

a set of electrically conductive contact pads accessible along the substrate; and

a plurality of electrically conductive buses providing electrical communication between the plurality of contact pads and the plurality of electrodes, each one of the buses being in electrical communication with a respective electrode. This traveling wave grid embodiment is also adapted for use at least another traveling wave grid. See col. 10:33-54.

It would have been obvious to one with ordinary skill in the art at the time of the invention to use the multi-grid embodiment, which is discussed in column 10 of lean, in the vertically integrated system of Figure 1A because this allow refined separation of biomolecules. See col. 11:01-49.

Addressing claim 12, for the additional limitations of this claim see col. 06:67-68, which discloses forming the electrodes on a glass plate, and col. 06:63-66, which discloses a gel layer cast over the glass plate.

Addressing claim 15, Lean discloses an electrophoretic cell having a plurality of traveling wave modules (Figure 6), the cell comprising

a first planar substrate (col. 06:67 – col. 07:01; col. 07:55-59, which discloses forming the electrodes on a glass plate. Although not strictly speaking in regard to the embodiment of Figure 6, these passages clearly disclose the primary intended way the electrodes are to be formed for all disclosed embodiments); and

a plurality of traveling wave modules (410, 420, 430) disposed on the first substrate, each traveling wave module including (i) a module base, (ii) a plurality of closely spaced electrodes extending across the base, (iii) a plurality of electrically conductive buses in electrical communication with the electrodes, (iv) a plurality of contact pads at which electrical communication to eth buses is provided, and (v) a layer of a suitable gel adapted for electrophoresis techniques disposed adjacent the electrodes (Figure 6 and col. 10:33 – col. 11:32).

Lean does not mention for the embodiment of Figure 6 also providing a second planar substrate spaced from and parallel with the first substrate. Lean does disclose in single module embodiment providing a second planar substrate spaced from and parallel with a first substrate. See Figure 1B. It would have been obvious to one with ordinary skill in the art at the time of the invention to provide a second planar substrate spaced from and parallel with the first substrate as taught in the embodiment of Figure 1B in the embodiment of Figure 6 because as taught by Lean the second planar substrate will provide a counter electrode that will exert electrostatic pressure to load proteins against the traveling wave grid so as to enhance protein loading. See col. 07:33-47.

Addressing claim 16, the embodiment of Figure 6 only shows one column of traveling wave modules. However, barring evidence to the contrary, such as unexpected results, providing 2 to 20 columns of traveling wave grids is just multiplication of parts for multiplied effect, which is per se obvious. By two or more columns of traveling wave modules several samples can be simultaneously separated or analyzed.

Addressing claim 17, the embodiment in Figure 6 shows three traveling wave modules in a column. The number of traveling wave modules in a column will depend on the desired degree of refinement in the separation of the biomolecules.

Addressing claim 23, Lean discloses a system for separating, transporting or focusing biomolecules, the system comprising

a substrate;

a plurality of closely spaced, parallel, electrically conductive electrodes disposed on the substrate;

a layer of a material adapted for the retention and migration of biomolecules disposed therein; and

a voltage controller in electrical communication with the plurality of electrodes, the voltage controller providing a four phase electrical control signal to the plurality of electrodes;

wherein depending upon the signal provided by the voltage controller, a particular mode of transport is imparted to biomolecules disposed in the layer. See Figure 6 and col. 10:33 – col. 11:31 and col. 06:67-68.

The embodiment of Figure 6 only shows one column of traveling wave modules. However, barring evidence to the contrary, such as unexpected results, providing 2 to 20 columns of traveling wave grids is just multiplication of parts for multiplied effect, which is per se obvious. By two or more columns of traveling wave modules several samples can be simultaneously separated or analyzed.

The embodiment in Figure 6 shows three traveling wave modules in a column. The number of traveling wave modules in a column will depend on the desired degree of refinement in the separation of the biomolecules.

Addressing claim 24, Lean discloses a system for separating, transporting or focusing biomolecules, the system comprising

a substrate;

a plurality of closely spaced, parallel, electrically conductive electrodes disposed on the substrate;

a layer of a material adapted for the retention and migration of biomolecules disposed therein; and

a voltage controller in electrical communication with the plurality of electrodes, the voltage controller providing a four phase electrical control signal to the plurality of electrodes;

wherein depending upon the signal provided by the voltage controller, a particular mode of transport is imparted to biomolecules disposed in the layer. See Figure 6 and col. 10:33 – col. 11:31 and col. 06:67-68.

Lean does not mention for the embodiment of Figure 6 also providing an electrically conductive plane oriented generally parallel with the plane of electrodes. Lean does disclose in a single module embodiment providing an electrically conductive plane oriented generally parallel with the plane of electrodes. See Figure 1B. It would have been obvious to one with ordinary skill in the art at the time of the invention to provide an electrically conductive plane oriented generally parallel with the plane of electrodes as taught in the embodiment of Figure 1B in the embodiment of Figure 6 because as taught by Lean the second planar substrate will provide a counter electrode that will exert electrostatic pressure to load proteins against the traveling wave grid so as to enhance protein loading. See col. 07:33-47.

Claim Objections

13. Claim 14 is objected to because of the following informality: in line 2 "dispose" should be -- disposed --. Appropriate correction is required.

Allowable Subject Matter

14. Claims 5-7, 13, and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter:

a) Claim 5: the combination of limitations requires the traveling wave grid assembly to further include a layer of an electrical insulator disposed between the plurality of electrodes and the plurality of buses, wherein the plurality of buses are oriented in the assembly such that they extend across at least a majority of the electrodes. 'This integrated structure minimizes the surface area

or "footprint" of the traveling wave module.' See paragraph [0089] of the specification.

In Lean the buses are on two contiguous pads on respective sides of the traveling wave grid (electrode segments thereof). See col. 10:33-54.

Frénéa et al. (« A Multilayer Microelectrode array for Particle separation by Dielectrophoresis, » Micro Total Analysis systems 2002, Volume 1, 578-580, Y. Baba et al. (eds.)) discloses a "... a chip that enables the manipulation of thousands of particles at the same time, using a large 2D-microelectrode array." The particles are manipulated by dielectrophoresis and the chip comprises an insulator layer disposed between a plurality of electrodes and a plurality of buses. See the abstract and Figure 3. However, the chip is not used with a voltage controller adapted to provide an electrical signal having a plurality of phases as the chip of Frénéa et al. is not for creating traveling wave dielectrophoresis fields. So the number of buses does not correspond to the number of phases of the electrical signal provided by the controller.

b) Claims 6 and 7 depend from allowable claim 5.

c) Claim 13: the combination of limitations requires the layer of the electrical insulator to be disposed between the plurality of electrodes and the plurality of buses. In Lean the layer of electrical insulator, gel layer, is on top of or over the

plurality of electrodes and the plurality of buses because the gel is cast over them. See col. 06:63-66 and col. 11:10-15.

d) Claim 14: the combination of limitations requires the plurality of buses to be disposed between the layer electrical insulator and the glass substrate. 'This integrated structure minimizes the surface area or "footprint" of the traveling wave module.' See paragraph [0089] of the specification.

In Lean the buses are on two contiguous pads on respective sides of the traveling wave grid (electrode segments thereof). See col. 10:33-54.

Frénéa et al. (« A Multilayer Microelectrode array for Particle separation by Dielectrophoresis, » Micro Total Analysis systems 2002, Volume 1, 578-580, Y. Baba et al. (eds.)) discloses a "... a chip that enables the manipulation of thousands of particles at the same time, using a large 2D-microelectrode array." The particles are manipulated by dielectrophoresis and the chip comprises an insulator layer disposed between a plurality of electrodes and a plurality of buses. See the abstract and Figure 3. However, the chip is not used with a voltage controller adapted to provide an electrical signal having a plurality of phases as the chip of Frénéa et al. is not for creating traveling wave dielectrophoresis fields. So the number of buses does not correspond to the number of phases of the electrical signal provided by the controller.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (571) 272-1343. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alex Noguerola
Primary Examiner
AU 1753
April 14, 2007